

Kubota D1105 Engine



General Technical Data

Kubota D1105 Engine Specifications

Engine Model Kubota D1105
Engine Type Vertical, water-cooled, 4-stroke diesel
Number of cylinders 3
Bore, mm (in.) 78.0 (3.07)
Stroke, mm (in.) 78.4 (3.09)
Total displacement, cm³ (cu. in.) 1123 (68.6)
Gross power, kw (hp) 20.9 (28.0)
Net power, kw (hp) 18.7 (25.0)
Maximum speed, rpm 3200
Idling speed, rpm 850-950
Maximum torque, Nm (lb-ft) 68.3 (50.3)
Torque speed, rpm 2000
Combustion Chamber Spherical type
Direction of rotation Counter-clockwise
Compression ratio 24:1
Firing order 1-2-3

Fuel System

Fuel injection pump Bosch type
Injection nozzle Bosch Throttle type
Injection timing, deg (rad) 16.5 (0.29) before T.D.C.
Injection pressure, MPa (psi) 13.7 (1990)
Governor All speed mechanical governor
Governor Regulating Less than 5%

Lubricating System

Lubricating system Forced lubrication by trochoid pump
Oil pressure indicating Electrical type switch
Oil filter Full flow paper filter (cartridge type)

Electrical System

Starting system Electric starting with starter
Starter Rating 12V, 1.0 kW
Starting support device By glow plug in combustion chamber
Battery 12V, 65 AH
Charging Alternator 12V, 360W

Dimensions

Length, mm (in.) 497.9 (19.7)
Width, mm (in.) 396 (15.6)
Height, mm (in.) 608.8 (23.9)
Dry weight, kg (lbs.) 89 (196.2)

Kubota D1105 Maintenance Data

Fuel type Diesel fuel No. 2-D
Engine oil type SAE 10W-40
Engine oil capacity, L (qts) 4.0 (4.23)
Coolant capacity, L (qts) 3.1 (3.3)
Oil filter change interval Every 200 hours
Oil change interval Every 200 hours
Fuel filter change interval Every 400 hours

Kubota D1105 Service Specifications

Cylinder Block

Cylinder Liner I.D. 78.000-78.019 mm (3.0709-3.0716 in.)
Cylinder (Oversized) 78.500-78.519 mm (3.0906-3.0913 in.)
Camshaft Side Clearance 0.07-0.22 mm (0.0028-0.0087 in.)
Camshaft Alignment 0.01 mm (0.0004 in.)
Cam Height, Intake 28.80 mm (1.1339 in.)
Cam Height, Exhaust 29.0 mm (1.1417 in.)
Crankpin to Crankpin Bearing, Oil Clearance 0.029-0.091 mm (0.0011-0.0036 in.)
Crankshaft, Side Clearance 0.15-0.31 mm (0.0059-0.0122 in.)
Piston Ring Gap, Top Ring 0.20-0.35 mm (0.0079-0.0138 in.)
Piston Ring Gap, Second Ring 0.40-0.55 mm (0.0157-0.0217 in.)
Piston Ring Gap, Oil Ring 0.30-0.55 mm (0.0118-0.0217 in.)
Piston Ring to Piston Ring Groove, Clearance (Second Ring) 0.085-0.112 mm (0.0033-0.0044 in.)
Piston Ring to Piston Ring Groove, Clearance (Oil Ring) 0.020-0.055 mm (0.0008-0.0021 in.)

Cylinder Head

Valve Clearance (Cold) 0.145-0.185 mm (0.00571-0.00728 in.)
Top Clearance 0.55-0.70 mm (0.0217-0.0276 in.)
Valve Spring, Free Length 37.0-37.5 mm (1.457-1.476 in.)
Valve Spring, Tilt 1.0 mm (0.039 in.)
Valve Spring, Setting Load 117.4 N / 31.0 mm (26.4 lbs / 1.22 in.)
Valve Timing (Intake Valve), Open 0.38 rad (22°) before T.D.C.
Valve Timing (Intake Valve), Close 0.82 rad (47°) after B.D.C.
Valve Timing (Exhaust Valve), Open 0.91 rad (52°) before B.D.C.
Valve Timing (Exhaust Valve), Close 0.30 rad (17°) after T.D.C.
Rocker Arm Shaft to Rocker Arm, Clearance 0.020-0.062 mm (0.0008-0.0024 in.)
Tappet to Tappet Guide, Clearance 0.020-0.062 mm (0.0008-0.0024 in.)

Idle Gear Shaft To Gear Bushing

Idle Gear 1, Clearance 0.020-0.054 mm (0.0008-0.0021 in.)
Idle Gear Bushing I.D. 26.000-26.021 mm (1.0236-1.0244 in.)
Idle Gear Shaft 1 O.D. 25.967-25.980 mm (1.0223-1.0228 in.)
Idle Gear 2, Clearance 0.020-0.054 mm (0.0008-0.0021 in.)
Idle Gear Bushing I.D. 26.000-26.021 mm (1.0236-1.0244 in.)
Idle Gear Shaft 2 O.D. 25.967-25.980 mm (1.0223-1.0228 in.)

Tightening Torque Specs

Cylinder head cover screw (M7x1.0), Nm (lb-ft) 6.9-8.8 (5.1-6.5)
Cylinder head screw (M10x1.25), Nm (lb-ft) 63.7-68.6 (47.0-50.6)
Oil pressure switch (PT1/8), Nm (lb-ft) 14.7-19.6 (10.8-14.5)
Injection pipe retaining nuts (M12x1.5), Nm (lb-ft) 24.5-34.3 (18.1-25.3)
Overflow pipe assembly retaining screw (M12x1.5), Nm (lb-ft) 19.6-24.5 (14.5-18.1)
Alternator's pulley nut, Nm (lb-ft) 58.3-78.9 (43.0-58.2)
Drain plug with copper gasket (M12x1.25), Nm (lb-ft) 32.4-37.3 (23.9-27.5)
Drain plug with copper gasket (M22x1.5), Nm (lb-ft) 63.7-73.5 (47.0-54.2)
Drain plug with rubber coated gasket (M22x1.5), Nm (lb-ft) 44.1-53.9 (32.5-39.8)